

WHAT IS CLAIMED IS:

1. A navigation system comprising:

an information center having a map database, for receiving information about a present vehicle position and a destination from a navigation terminal, searching out an optimum route between the present position and the destination referring to map data in the map database, and generating route guidance data to guide a vehicle to at least one node point on the optimum route;

the navigation terminal inside the vehicle, for calculating the present position of the vehicle, transmitting the vehicle's current position information to the information center, receiving the route guidance data, and announcing a notification message about the node point by voice in a predetermined period before the vehicle passes through the node point; and

a wireless communication network for connecting the information center to the navigation terminal wirelessly.

2. The navigation system of claim 1, wherein the navigation terminal further provides the notification message about the node point as image data.

3. The navigation system of claim 2, wherein the navigation terminal comprises:

a mobile terminal for connecting to the wireless communication network wirelessly; and

an ITS (Intelligent Transportation System) terminal having a GPS (Global Positioning System) device for calculating the present vehicle position.

4. The navigation system of claim 3, wherein the notification message about the node point is announced via the mobile terminal.

5. The navigation system of claim 3, wherein the notification message about the node point is announced via the ITS terminal.

6. The navigation system of claim 3, wherein the information about the present vehicle position and destination is input via the mobile terminal.

7. The navigation system of claim 3, wherein the information about the present vehicle position and destination is input via the ITS terminal.

8. The navigation system of claim 1, wherein the information center searches out the optimum route based on traffic information collected in real time as well as the map data.

9. The navigation system of claim 1, wherein the information center comprises:

a plurality of sensors installed on roads, for collecting traffic information;

a first server for generating real-time traffic information by processing the traffic information collected by the sensors in real time;

a second server for searching out the optimum route between the present vehicle position and the destination based on the map data and the generated real-time traffic information and generating the route guidance data; and

a third server for connecting to the wireless communication network and transmitting the route guidance data to the wireless communication network.

10. The navigation system of claim 1, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

11. The navigation system of claim 1, wherein the node point is one of an intersection, a tollgate, an interchange, and a waypoint in the vicinity of the destination.

12. A method of guiding a vehicle's travel in a navigation system having an information center with a map database, a navigation terminal inside the vehicle for calculating a present position of the vehicle, and a wireless communication network for

connecting the information center to the navigation terminal wirelessly, comprising the steps of:

transmitting information about the present vehicle position and a destination from the navigation terminal to the information center via the wireless communication network;

searching out an optimum route between the present vehicle position and the destination based on map data from the map database at the information center;

generating route guidance data for guiding the vehicle to at least one node point on the optimum route at the information center and transmitting the route guidance data from the information center to the navigation terminal via the wireless communication network; and

announcing a notification message about the node point by voice in a predetermined period before the vehicle passes through the node point based on the route guidance data at the navigation terminal.

13. The method of claim 12, further comprising the step of providing the notification message about the node point as image data at the navigation terminal.

14. The method of claim 12, wherein the optimum route is searched out based on traffic information collected in real time as well as the map data at the information center.

15. The method of claim 12, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

16. The method of claim 12, wherein the node point is one of an intersection, a tollgate, an interchange, and a waypoint in the vicinity of the destination.

17. The method of claim 12, further comprising the step of requesting new route guidance data from the navigation terminal when the vehicle strays off the optimum route.

18. A method of guiding a vehicle's travel in a navigation system having an information center with a map database, a navigation terminal inside the vehicle; having a mobile terminal for connecting to a wireless communication network wirelessly and an ITS (Intelligent Transportation System) terminal with a GPS (Global Positioning System) device for calculating a present vehicle position, and the wireless communication network for connecting the information center to the navigation terminal wirelessly, comprising the steps of:

transmitting information about the present vehicle position and a destination from the mobile terminal to the information center via the wireless communication network;

searching out an optimum route between the present vehicle position and the destination based on map data from the map database at the information center;

generating route guidance data for guiding the vehicle to at least one node point on the optimum route at the information center and transmitting the route guidance data from the information center to the mobile terminal via the wireless communication network;

transmitting the route guidance data from the mobile terminal to the ITS terminal;

announcing a notification message about the node point by voice in a predetermined period before the vehicle passes through the node point based on the route guidance data at the ITS terminal.

19. The method of claim 18, further comprising the step of providing the notification message about the node point as image data at the mobile terminal.

20. The method of claim 18, further comprising the step of providing the notification message about the node point as image data at the ITS terminal.

21. The method of claim 18, wherein the optimum route is searched out based on traffic information collected in real time as well as the map data at the information center.

22. The method of claim 18, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

23. The method of claim 18, wherein the node point is one of an intersection, a tollgate, an interchange, and a waypoint in the vicinity of the destination.

24. The method of claim 18, further comprising the step of requesting new route guidance data from the navigation terminal when the vehicle strays off the optimum route.

25. A method of guiding a vehicle's travel in a navigation system having an information center with a map database, a navigation terminal inside the vehicle having a mobile terminal for connecting to a wireless communication network wirelessly and an ITS (Intelligent Transportation System) terminal with a GPS (Global Positioning System) device for calculating a present vehicle position, and the wireless communication network for connecting the information center to the navigation terminal wirelessly, comprising the steps of:

transmitting information about the present vehicle position and a destination from the ITS terminal to the mobile terminal and the information center via the wireless communication network;

searching out an optimum route between the present vehicle position and the destination based on map data from the map database at the information center;

generating route guidance data for guiding the vehicle to at least one node point on the optimum route at the information center and transmitting the route guidance data from the information center to the mobile terminal via the wireless communication network;

transmitting the route guidance data from the mobile terminal to the ITS terminal;

announcing a notification message about the node point by voice in a predetermined period before the vehicle passes through the node point based on the route guidance data at the ITS terminal.

26. The method of claim 25, further comprising the step of providing the notification message about the node point as image data at the mobile terminal.

27. The method of claim 25, further comprising the step of providing the notification message about the node point as image data at the ITS terminal.

28. The method of claim 25, wherein the optimum route is searched out based on traffic information collected in real time as well as the map data at the information center.

29. The method of claim 25, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

30. The method of claim 25, wherein the node point is one of an intersection, a tollgate, an interchange, and a waypoint in the vicinity of the destination.

31. The method of claim 25, further comprising the step of requesting new route guidance data from the navigation terminal when the vehicle strays off the optimum route.